

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re National Phase of:

Applicant: Emilio Palomares Gil et al.  
PCT Application No.: PCT/GB2003/003397  
PCT Filing Date: August 4, 2003  
U.S. Serial No: 10/523,036  
Title: LOW-TEMPERATURE METAL OXIDE COATING  
Attorney Docket No. FRYHP0130US

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

1. Pursuant to 37 C.F.R. 1.97 and 1.98, and in compliance with 37 C.F.R. 1.56, the Office's attention is directed to the patents, pending applications, publications and other information listed on the attached PTO-1449.

Regarding any document, publication or other information for which a date is not given on the attached PTO-1449, Applicant(s) believe(s) the same may qualify as "prior" art to this application and should be treated accordingly, although Applicant(s) reserve(s) the right to contest the prior art status of any document, publication or information, should issue arise.

2. Regarding each listed document that is not in the English language, an English-language translation accompanies this Statement as indicated on the attached PTO-1449 or a concise explanation of the relevance of the document is set forth in the following document(s):

- (a) ☒ Copy of each English language version of a search report indicating the degree of relevance found by the foreign office of each document being submitted from the search report, is being submitted herewith or has previously been submitted.
- (b) ☐ Attached is a "Concise Explanation of Relevance of Non-English Language Documents".

3. Pursuant to 37 C.F.R. 1.97(b) this Statement is being filed (one must be checked):

- (a) ☐ Within 3 months of the filing date, date of entry into the National Stage, or filing date of CPA.
- (b) ☒ Before the mailing date of a first Office Action on the merits. If this Statement is not filed before the mailing date of a first Office Action on the merits, the required certification is given below or, in the absence thereof, the Office is authorized to charge the required fee set forth in 37 C.F.R. 1.17(p) to Deposit Account No. 18-0988 for consideration of this Statement.
- (c) ☐ Before the mailing date of a first Office Action on the merits after a first or second submission after final rejection under 37 C.F.R. 1.129(a).

(d) \_\_\_ After the period set forth in 37 C.F.R. 1.97(b) but before the mailing date of either a final action or a notice of allowance.

(1) \_\_\_ The required certification is given below, or

(2) \_\_\_ Enclosed is a check covering the fee set forth in 37 C.F.R. 1.17(p) for consideration of this Statement, or

(3) \_\_\_ Charge the fee set forth in 37 C.F.R. 1.17(p) to Deposit Account No. 18-0988

(e) \_\_\_ After the mailing date of either a final action or a notice of allowance, but before payment of the issue fee. Petition hereby is made for consideration of this Statement and the required certification is indicated below.

(1) \_\_\_ Enclosed is a check covering the fee set forth in 37 C.F.R. 1.17(p), or

(2) \_\_\_ Charge the fee set forth in 37 C.F.R. 1.17(p) to Deposit Account No. 18-0988.

4. Certification (if applicable)

(a) \_\_\_ The undersigned hereby certifies that each item of information contained in this Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than 3 months prior to the filing of this Statement.

(b) \_\_\_ The undersigned hereby certifies that no item of information contained in this Statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the undersigned's knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. 1.56(c) more than 3 months prior to the filing of this Statement.

5. The Commissioner is hereby authorized to charge any additional fees or credit any overpayment to Deposit Account No. 18-0988.

Respectfully Submitted,

RENNER, OTTO, BOISSELLE & SKLAR, LLP

By 

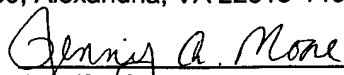
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**CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8**

I hereby certify that this correspondence (along with any paper referenced as being attached or enclosed) is being deposited on the below date with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Date: 1-3-06

  
Jennifer A. Moore

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|---|--|---------------------------------|
| Form PTO-1449 (Modified)<br><br><b>LIST OF PATENTS AND PUBLICATIONS<br/>FOR APPLICANT'S<br/>INFORMATION DISCLOSURE STATEMENT</b><br><br>(Use several sheets if necessary) | Atty Docket No.<br><b>FRYHP0130US</b>            | Serial No.<br><b>10/523,036</b> |
|   | Applicant:<br><b>Emilio Palomares Gil et al.</b> |                                 |
|   | Filing Date<br><b>2/2/05</b>                     | Group                           |

## U.S. PATENT DOCUMENTS

| Examiner Initial | Document Number | Date    | Name             | Class | Sub-class | Filing Date if Appropriate |
|------------------|-----------------|---------|------------------|-------|-----------|----------------------------|
|                  | 4,579,594       | 04/1986 | Nanao et al.     |       |           |                            |
|                  | 4,842,888       | 06/1989 | Haluska et al.   |       |           |                            |
|                  | 5,612,082       | 03/1997 | Azuma et al.     |       |           |                            |
|                  | 5,637,346       | 06/1997 | Moriyama et al.  |       |           |                            |
|                  | 5,811,153       | 09/1998 | Hashimoto et al. |       |           |                            |
|                  | 5,814,137       | 09/1998 | Blohowiak et al. |       |           |                            |

## FOREIGN PATENT DOCUMENTS

| Examiner Initial | Document Number | Date    | Country | Class | Sub-class | Translation |    |
|------------------|-----------------|---------|---------|-------|-----------|-------------|----|
|                  |                 |         |         |       |           | Yes         | No |
|                  | 0 374 754       | 06/1990 | EP      |       |           |             |    |
|                  | 0 513 821       | 11/1992 | EP      |       |           |             |    |
|                  | 0 564 866       | 10/1993 | EP      |       |           |             |    |
|                  | 0 650 187       | 04/1995 | EP      |       |           |             |    |
|                  | 0 674 019       | 09/1995 | EP      |       |           |             |    |
|                  | 0 939 434       | 09/1999 | EP      |       |           |             |    |
|                  | 95/16060        | 06/1995 | WO      |       |           |             |    |
|                  | 98/28466        | 07/1998 | WO      |       |           |             |    |
|                  | 99/05712        | 04/1999 | WO      |       |           |             |    |

## OTHER ART

| Examiner Initial | Author, Title, Date, Pertinent Pages, etc.   |
|------------------|--|
|                  | Palomares, Emilio et al. "Slow Charge Recombination in Dye-Sensitised Solar Cells (DSSC) Using Al <sub>2</sub> O <sub>3</sub> Coated Nanoporous TiO <sub>2</sub> Films." <u>Chemical Communications</u> . 14 (7/21/2002): 1464-1465. |

| Examiner Initial | Author, Title, Date, Pertinent Pages, etc.  |
|------------------|---|
|                  | Ichinose, laumi et al. "Stepwise Adsorption of Metal Alkoxides on Hydrolyzed Surfaces: A Surface Sol-Gel Process." <u>Chemistry Letters</u> . 25.10 (1996): 831-832.  |
|                  | Ichinose, laumi et al. "A Surface Sol-Gel process of TiO <sub>2</sub> and Other Metal Oxide Films With Molecular Precision." <u>Chemistry of Materials, American Chemical Society</u> . 9.6 (1997): 1296-1298.  |
|                  | Kay, Andreas et al. "Dye-Sensitized Core - Shell Nanocrystals: Improved Efficiency of Mesoporous Tin Oxide Electrodes Coated with a Thin Layer of an Insulating Oxide." <u>Chemistry of Materials, American Chemical Society</u> . 14.7 (2002): 2930-2935.          |
|                  | Tennakone, K. et al. "Dye-Sensitized Solid-State Photovoltaic Cells: Suppression of Electron-Hole Recombination by Deposition of the Dye on a Thin Insulating Film in Contact with a Semiconductor." <u>Journal of Electronic Materials</u> . 30.8 (2001): 992-996. |
|                  | Palomares, Emilio et al. "Control of Charge Recombination Dynamics in Dye Sensitized Solar Cells by the Use of Conformally Deposited Metal Oxide Blocking Layers." <u>Journal of the American Chemical Society</u> . 125.2 (2003): 475-482.                         |
|                  | Elder, S.H. et al. "The Discovery and Study of Nanocrystalline TiO <sub>2</sub> -(MoO <sub>3</sub> ) Core-Shell Materials." <u>Journal of the American Chemical Society</u> . 122.21 (2000): 5138-5146.   |
|                  | Tennakone, K. et al. "Dye-Sensitized Solid State Photovoltaic Cell Based on Composite Zinc Oxide/Tin (IV) Oxide Films." <u>J. Phys. D: Appl. Phys.</u> 32 (1999): 374-379.  |
|                  | Tennakone, K. et al. "Dye-Sensitized Composite Semiconductor Nanostructures." <u>Physica E</u> . 14 (2002): 190-196.  |

|          |                 |
|----------|-----------------|
| EXAMINER | DATE CONSIDERED |
|----------|-----------------|

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

### Information Disclosure Statement PTO-1449 (Modified)

The identification of any reference is not intended to be, and should not be understood as being, an admission that such publication, in fact, constitutes "prior art" within the meaning of applicable law since, for example, a given reference may have a later effective date than first seems apparent or the reference may have an effective date which can be antedated. The "prior art" status of any reference is a matter to be resolved during prosecution.

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